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EXAMINER

NGUYEN, LAM S

ART UNIT

PAPER NUMBER

2853

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Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	09/941,884	GARCIA ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	LAM S NGUYEN	2853

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 02 October 2003.

2a) This action is FINAL.      2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-18 and 20-22 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1,3-10,12-18 and 20-22 is/are rejected.

7) Claim(s) 2 and 11 is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 28 August 2001 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. §§ 119 and 120

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) All b) Some \* c) None of:  
1. Certified copies of the priority documents have been received.  
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

13) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) The translation of the foreign language provisional application has been received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

#### Attachment(s)

1) Notice of References Cited (PTO-892)      4) Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.  
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)      5) Notice of Informal Patent Application (PTO-152)  
3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.      6) Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Drawings***

This application has been filed with informal drawings FIG. 11 and FIG. 12 which are acceptable for examination purposes only. Formal drawings will be required when the application is allowed.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1, 5-6, 10, 14 –15, 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dunand (US 6398334) in view of Takagi et al. (US 6089695).

Dunand discloses a diagnostic method for visual detection media advance calibration in an ink-jet printing comprising:

printing different areas of a diagnostic at different passes of one or more ink-jet printhead controlled amount of media advances between the passes, to accumulate media advance error between the printing of the different areas; and examining the diagnostic pattern to determine whether the accumulated media advance error is sufficiently objectionable to take corrective action (column 10, line 22-26: if the accumulated advance error reaches a half of a nominal advance, the corrective action is that the reference mark is chosen to print the next band).

Dunand does not disclose the step of entering a diagnostic mode of the printing system in which mode normal printing jobs of the printing system are not printed (**Referring to claim 1**) and an initial step of checking for printhead health and taking any corrective needed action prior to printing said diagnostic pattern (**Referring to claims 6, 15, 22**).

Takagi et al. disclose a process in a printer comprising a step of entering a diagnostic mode of the printing system in which mode normal printing jobs of the printing system are not printed (FIG. 12A, step S102: PRINT DETECTION PATTERN), and an initial step of checking for printhead health (FIG. 12, step S104: NON-DISCHARGE NOZZLE IS PRESENT) and taking any corrective needed action prior to printing said diagnostic pattern (Abstract: After abnormal nozzles are detected, data related to such abnormal nozzles are removed).

Therefore, it would have been obvious for one having ordinary skill in the art at the time the invention was made to modify the printing process disclosed by Dunand such that including the step of entering diagnostic mode that checks printhead health and takes any corrective needed action as disclosed by Takagi et al. The motivation of doing so is to provide a liquid discharge apparatus capable of obtaining the desired result of discharges without any defects even when non-discharge or another malfunction occurs in the discharging means as taught by Takagi et al. (column 3, line 60-65).

Dunand also discloses the following claimed invention:

**Referring to claims 5 and 14:** wherein the step of examining the diagnostic pattern is conducted by an optical sensor (FIG. 8, element 12).

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2. Claims 7 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dunand (US 6398334) in view of Takagi et al. (US 6089695), and further in view of Maeda et al. (US 6334659).

Dunand, as modified, discloses the claimed invention as applied to claims 1 and 10 except that wherein said step of printing different areas of a diagnostic plot includes: applying a diagnostic multi-pass print mode mask, wherein a plurality of carriage passes are employed to print the area subtended by a printhead nozzle array, the diagnostic print mode mask comprising a rectilinear grid of pixels, with each pixel location having a number associated therewith, the number representing the pass in which the pixel will be printed, and wherein said different areas nominally aligned along a horizontal line include a first set of pixels on a row of said grid, and a second set of pixels on said row, and wherein said first set of pixels is printed on a different pass than said second set of pixels is printed. .

However, Maeda et al. discloses that wherein said step of printing different areas of a diagnostic plot includes: applying a diagnostic multi-pass print mode mask, wherein a plurality of carriage passes are employed to print the area subtended by a printhead nozzle array (FIG. 7A), the diagnostic print mode mask comprising a rectilinear grid of pixels (FIG. 10), with each pixel location having a number associated therewith (FIG. 10), the number representing the pass in which the pixel will be printed, and wherein said different areas nominally aligned along a horizontal line (FIG. 10C: areas printed by #1 pixel and #3 pixel are aligned along a horizontal line) include a first set of pixels on a row of said grid, and a second set of pixels on said row (FIG. 10C: the #1 pixel set is on the same row with the #3 pixel set), and wherein said first set of

pixels is printed on a different pass than said second set of pixels is printed (FIG. 10C: the #1 pixel set and #3 pixel set are printed on the different passes).

Therefore, it would have been obvious for one having ordinary skill in the art at the time the invention was made to include the applying of a diagnostic multi-pass print mode mask as disclosed by Maeda et al. into the advance control process as disclosed by Dunand, as modified. The motivation of doing so is to reduce the formed bind pitch to less than paper transport width without increasing the number of scans; thus, the banding artifacts are imperceptible as taught by Maeda et al. (column 4, line 4-10).

3. Claims 3, 8-9, 12, 17-18, and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dunand (US 6398334) in view of Yen et al. (US 5992962).

Dunand discloses the claimed invention as discussed above except wherein said diagnostic print mode mask defines that the first  $w/2$  pixels in the row are printed in the same pass, and the last  $w/2$  pixels in the row are printed in another pass, wherein said diagnostic print mode mask includes a row wherein said first  $w/2$  pixels are printed in a first pass, and said last  $w/2$  pixels are printed in a last pass of said plurality of passes, and wherein said different areas are nominally aligned along a horizontal line (**Referring to claims 3, 12**), and the diagnostic print mode mask comprising a rectilinear grid of pixels and a row width of  $w$  pixels, and said different area include a first set of pixels on a row of said grid, and a second set of pixels on said row, and wherein said first set of pixels is printed on a different pass than said second set of pixels is printed (**Referring to claims 8-9, 17-18, 20-21**).

Yen et al. disclose printing patterns including the first  $w/2$  pixels in the row are printed in the same pass, and the last  $w/2$  pixels in the row are printed in another pass, wherein said

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diagnostic print mode mask includes a row wherein said first  $w/2$  pixels are printed in a first pass, and said last  $w/2$  pixels are printed in a last pass of said plurality of passes (FIG. 6), and wherein said different areas are nominally aligned along a horizontal line (FIG. 3), and the diagnostic print mode mask comprising a rectilinear grid of pixels and a row width of  $w$  pixels, and said different area include a first set of pixels on a row of said grid, and a second set of pixels on said row, and wherein said first set of pixels is printed on a different pass than said second set of pixels is printed (FIG. 6) (Referring to claims 8-9, 17-18, 20-21).

Therefore, it would have been obvious for one having ordinary skill in the art at the time the invention was made to modify the diagnostic pattern disclosed by Dunand such as the first  $w/2$  pixels are printed in a first pass and the last  $w/2$  pixels are printed in a last pass of said plurality of passes as disclosed by Yen et al. The motivation of doing so is to eliminate unpleasant banding artifacts caused by ink migration as taught by Yen et al. (Abstract).

4. Claims 4 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dunand (US 6398334) in view of Takagi et al. (US 6089695) and Otsuki et al. (US 6196736).

Dunand, as modified, discloses the claimed invention as discussed above, except wherein said step of examining the diagnostic pattern is conducted visually by a user.

Otsuki et al. disclose a process in a printer including a step of examining the diagnostic pattern is conducted visually by a user (FIG. 15).

Therefore, it would have been obvious for one having ordinary skill in the art at the time the invention was made to modify the examining process of the diagnostic pattern as disclosed by Dunand, as modified, such that the examining of the diagnostic pattern is conducted visually by a user as disclosed by Otsuki et al. The motivation of doing so is to be able to correct the

advance media error by inputting correction values or adjusting parameters of the system which are done by the user as taught by Otsuki et al. (FIG. 15).

***Allowable Subject Matter***

Claims 2, 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The most pertinent cited art fails to disclose wherein said printing different areas comprises printing a first area comprising a first set of pixels printed during a first pass; conducting a plurality of incremental media advances; printing a further area comprising a second set of pixels printed during a further pass, wherein media advance errors resulting from said plurality of media advances are accumulated between printing said first area and printing said further area. Therefore, the claimed invention is not disclosed by the cited prior art.

***Response to Arguments***

Applicant's arguments with respect to claims 1, 4, 6-7, 10, 13, 15-16, 22 have been considered but are moot in view of the new ground(s) of rejection.

**Regarding to the argument on page 16 referring to claims 3, 8-9, 12, 17-18, 20-21:**  
The applicants argued that Yen does not disclose the mask pattern as a diagnostic print mask. However, in a print masking technique, a mask can be printed for testing purpose and image printing. Therefore, Yen's mask pattern still reads on the claim language.

***Conclusion***

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAM S NGUYEN whose telephone number is (703)305-3342. The examiner can normally be reached on 7:00AM - 3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, STEPHEN MEIER can be reached on (703)308-4896. The fax phone numbers for the organization where this application or proceeding is assigned are (703)305-3431 for regular communications and (703)305-3432 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

LN

December 11, 2003

*Hai Pham*

HAI PHAM  
PRIMARY EXAMINER